CLAIMS:

1. A ring resonator comprising:

a ring waveguide of a first relative refractive index difference having a narrow part; and

an optical waveguide of a second relative refractive index difference smaller than the first relative refractive index difference, the optical waveguide disposed adjacent to the narrow part to optically couple with the narrow part.

2. The ring resonator of claim 1 wherein the second relative refractive index difference is set to any of 0.3% to 0.75%.

3. The ring resonator of claim 1 wherein the ring waveguide comprises tapered parts in which the waveguide width gradually narrows and extends before and after the narrow part respectively.

4. A ring resonator comprising:

a ring waveguide of a first relative refractive index difference having first and second narrow parts;

a first optical waveguide of a second relative refractive index difference smaller than the first relative refractive index difference, the first optical waveguide disposed adjacent to the first narrow part to optically couple with the first narrow part; and

a second optical waveguide of a third relative refractive index difference smaller than the first relative refractive index difference, the second optical waveguide disposed adjacent to the second narrow part to optically couple with the second narrow part.

5. The ring resonator of claim 4 wherein each of the second and third relative refractive index differences is set to any

of 0.3% to 0.75%.

6. The ring resonator of claim 4 wherein the second relative refractive index difference is substantially identical to the third relative refractive index difference.

7. The ring resonator of claim 4 wherein the ring waveguide comprises tapered parts in which the waveguide width gradually narrows and extends before and after the first narrow part respectively and tapered parts in which the waveguide width gradually extends and narrows before and after the second narrow part respectively.